eyeheight

PM-2/2E

SDI on screen PPM unit.

user manual

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eyeheightUnit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

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eyeheightUnit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

1 System Overview

This manual describes the function of the PM-2/2E. The PM-2 unit is an AES audio level display and the PM-2E provides audio level monitoring for embedded audio.

The PM-2/2E will display program audio level information in-vision. The product displays level information for two channels of audio. The PM-2 displays AES 1, Channel 1 and 2. The PM-2E displays Group 1, Channel 1 & 2.

- Configurable meter size and position.
- Range of common audio scales.
- Peak hold indicators.

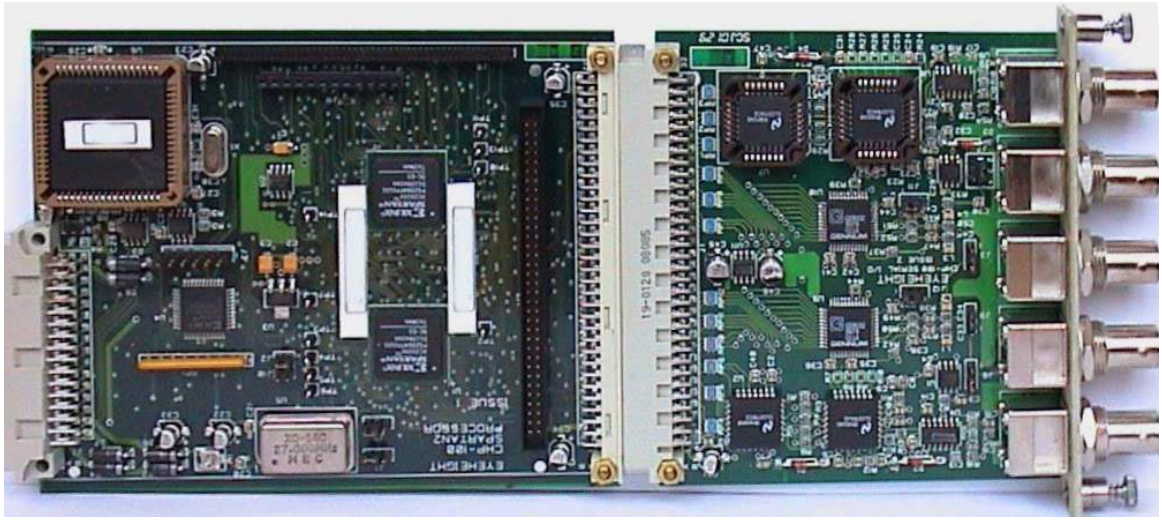

Figure 1-1 The PM-2E module.

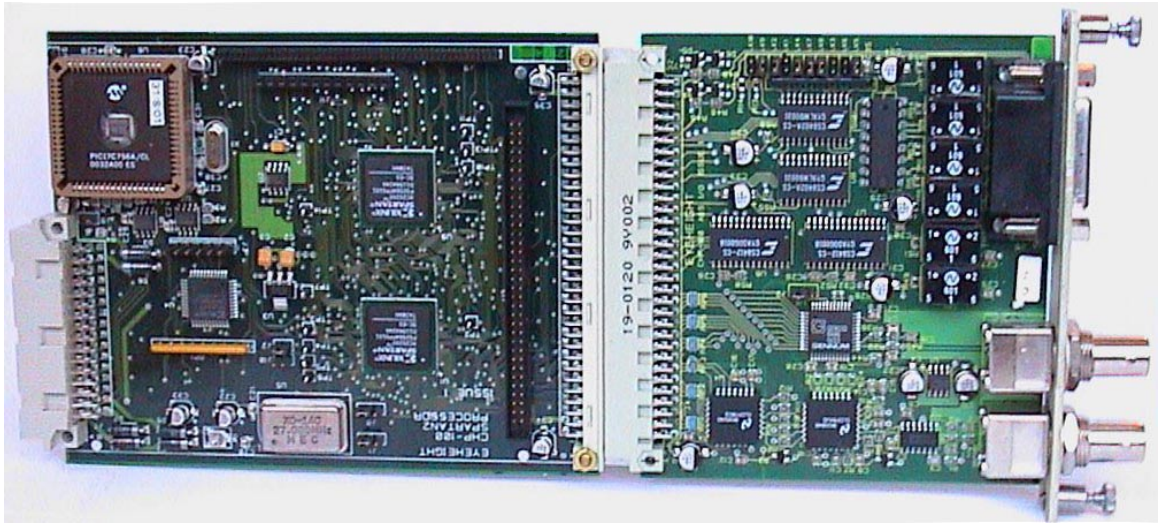

Figure 1-2 The PM-2 module.

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Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

1.1 Applications for the PM-2/2E

Applications for the PM-2/2E include the following:

- Studio operations including multi-screen use
- Outside broadcast operations, saving the space of a conventional PPM unit.

Figure 1-3 Typical PM-2/2E display.

1.2 Associated Equipment for the AD-2/AD-2E

The PM-2/2E is a module and requires both a chassis and a control surface to function.

1.2.1 Chassis Types

- **flexiBox** is a 1RU chassis. The order code is FB-9. This will hold a maximum of 6 PM-2/2E Modules with “Hot Swap” redundant PSU option and “Hot Swap” PM-2/2E modules.
- **maxiBox** is an alternative low cost 1RU chassis. The order code is MX-9. This also will hold a maximum of 6 PM-2/2E modules but it has no redundant PSU option and the PM-2/2E units must be factory fitted.

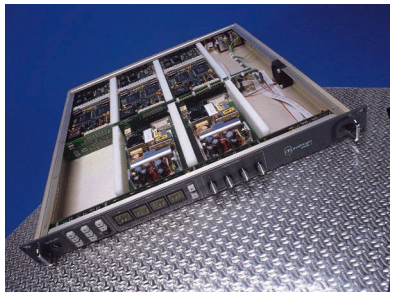

Figure 1-4 flexiBox with flexiPanel fitted

1.2.2 Control Surfaces

- **flexiPanel** is a IRU control surface that fits on the Front of a 1RU flexiBox. The order code is FP-9. A FlexiPanel can also be used in conjunction with

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Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com

a maxiBox, in this case the extra accessory (Order code RR-9) will be required

- **FP-10** is a desk mounting control surface (Order code FP-10). This unit is a modular unit, which can be used in conjunction with the units below.

Figure 1-5 FP-10 desktop modular panel

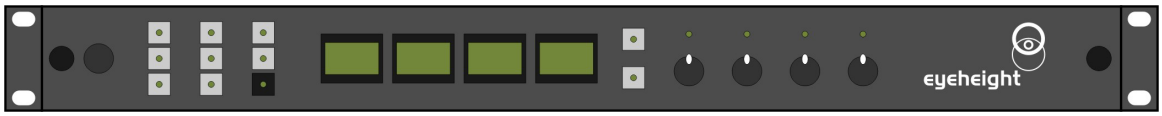

Figure 1-6 1RU FlexiPanel.

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2 Installation

2.1 Installation of the PM-2/2E product

If this unit is already pre-installed in a flexiBox (FB-9), or a maxiBox, with either a local or a remote panel from the factory then refer to the "Hardware Installation Guide" which will be enclosed with the system. If this unit is pre-installed in a miniBox (MB-9), then also refer to the "Hardware Installation Guide" which will be enclosed with the system

If this unit has been ordered separately, we assume here that you already have a flexiBox system with a Flexipanel and that the flexiBox has at least one spare slot above for the PM-2/2E card.

2.2 Installing the PM-2/2E into a flexiBox

To install the PM-2/2E into a flexiBox it is desirable (but not necessary) to power down the flexiBox. Follow these instructions.

On the rear of the flexiBox are 6 slots for Products. Remove any pair of spare blanking plates one above another. There are 2 off M2.5 Screws, which require unfastening for each blanking plate.

Slide the Product PCB into the spare slots and firmly push it home.

Use the two thumbscrews to fasten the unit in place.

Now refer to the "GeNETics User Guide". If your system consists of a single flexiBox with a single flexiPanel then refer to the section titled "flexiPanel Auto Set-up". If your system is part of a network with more than one flexiPanel then refer to the section titled "flexiPanel Manual Set-up". This will guide you through acquiring your product as a device on the flexiPanel.

2.3 Connecting Video and audio to an PM-2/2E

A diagram of the PM-2 I/O connector is shown below.

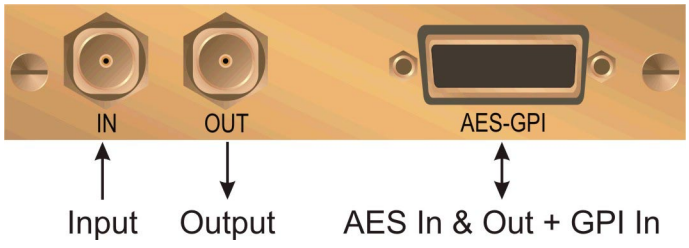

Figure 2-1 PM-2 I/O

Pin#	Function
1.	AES Input Channel 1 +ve
2.	AES Input Channel 1 –ve
3.	AES Input Channel 2 +ve

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4.	AES Input Channel 2 –ve
5.	AES Output Channel 1 +ve
6.	AES Output Channel 1 –ve
7.	AES Output Channel 2 +ve
8.	AES Output Channel 2 –ve
9.	AES Output Channel 1 +ve
10.	AES Output Channel 1 –ve
11.	AES Output Channel 2 +ve
12.	AES Output Channel 2 –ve
13.	GPI Input 1 (not used)
14.	GPI Input 2 (not used)
15.	GND

Figure 2-2 Pin Out of AES-IO Card 15 Way D-Type

A diagram of the PM-2E I/O connector is shown below.

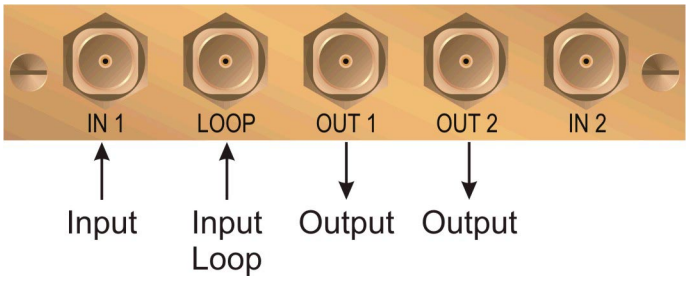

Figure 2-3 PM-2E I/O

2.4 Connecting Panels to the PM-2/2E

The PM-2/2E may be operated using a FP-9 or FP-10 flexiPanel locally or remotely mounted. For detailed information on connecting remote panels, refer to the section “Connection of Remote Panels to a flexiBox” in the geNETics Hardware Installation Guide.

Below is shown a typical system consisting of an PM-2/2E in a flexiBox controlled by a remotely mounted FP-9.

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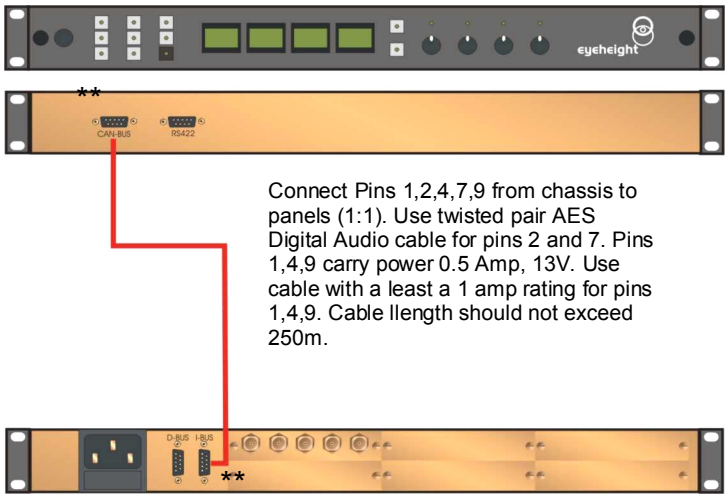
**
CAN-BUS
RS422
Connect Pins 1,2,4,7,9 from chassis to panels (1:1). Use twisted pair AES Digital Audio cable for pins 2 and 7. Pins 1,4,9 carry power 0.5 Amp, 13V. Use cable with a least a 1 amp rating for pins 1,4,9. Cable llength should not exceed 250m.
D-BUS
I-BUS
**

I-Bus pins 2 & 7

** The I-BUS Network requires terminating with 100 Ohms at each extreme end of the network. Ensure that this is done either by an external 100 ohm resistor OR ONE Panel/Product at each end has the termination set. See the "Genetics User Guide" Under the sections "Flexipanel Power/I-BUS Jumpers".For the 4RU Panels see “4RU Panel (FP-10) Jumpers for I-BUS” and “4RU Panel (VP-10, SW-10, AP-10) Jumpers for I-BUS” . Alternatively The termination can be set on a Product (ie the AD-2/AD-2E module). Information about this is given in this manual.

Figure 2-4 I-Bus connection from chassis to panel

N.B. From 1/10/02 Eyeheight introduced a change in the flexiBox Chassis. Most versions now have two 9 way connectors on the rear labelled “I-Bus” and “D-Bus”. The “I-Bus” connector is the same as the previously labelled “Can-B” connector. Although a maxiBox is shown in this diagram the same arrangement applies for a flexiBox chassis.

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3 Operation

3.1 Manual control of the PM-2/2E

Manual Control of the PM-2/2E is done using one or more of the following control surfaces:

- The 1RU FP-9 Flexipanel.
- The FP10 Desk mounting Panel

The FP-9 and the FP-10 have identical manual control systems. (The FP-10 is simply a desktop version of the FP-9).

The PM-2/2E is, as are all genetics modules, controlled using a set of MENUS. Each of these menus contains up to 3 parameters that are adjusted using the rotary digipots. The Menus define all of the adjustable operational parameters in the PM-2/2E. Pressing the rotary digipots brings the parameter to its default value. Device selection is done using the device select switches which, when pressed, will offer the name of the device in the LCD Window. Modules can be acquired and then de-acquired using the set-up switch. For a full description of the operation philosophy of the geNETics system, refer to the "geNETics User Guide" (section "Operation of the flexiPanel")

A full list of the Menus and their functions are given in section 3 of this chapter.

3.2 Automation Control of the PM-2/2E

Automation of the geNETics products is achieved via an RS422 port.** This port is marked RS422 on the rear of a flexiBox. For the port to work a flexiPanel MUST be connected locally on the front of the flexiBox.

Automation control of the PM-2/2E can be done using two protocol methods:

- geNETics Automation Protocol.
- PresTX Automation Protocol.

Genetics protocol is described in detail in the "GeNETics User Guide" section titled "Automation Protocol on the geNETics Platform". The menu list in section 3 of this chapter contains the data information for the protocol.

PresTX Automation Protocol is used only for the PresTX Presentation Mixer and channel branding system. In this case an AU-2 Automation card is also required. Refer to the PresTX Product manual

**On most flexiBoxes later than 1/10/02 the RS422 port has been replaced by a "D-Bus" Port. The D-Bus port is for High Speed data transfer and is not used for serial control. In order to achieve serial control of any products on an I-Bus network Eyeheight Ltd have developed a RS232→I-bus converter "dongle", (DG-9) which enables greater flexibility of products on the I-Bus network whilst using the same protocols as the RS422 port. Please refer to the "User guide for the DG-9 eyeheight dongle and set-up software.

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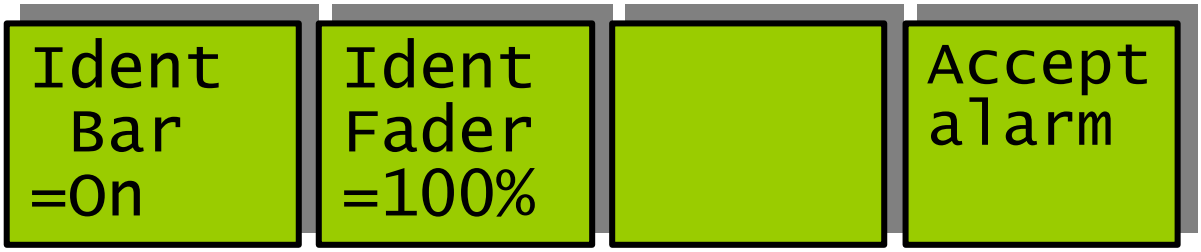
3.3 Operational Menus for the PM-2/2E

Menus 00-03 Top Level Menus

Menu Num.	Heading	Automation	Function
00	User Name	none	This is the user-programmed name for this unit. (see genetics user guide for information as to how to program names or aliases)
01	Software version	none	This displays the current software version.
02	Monitoring output gain	0→FF 0=0dB FF=-77dB	This adjusts the gain (volume) of the Programme+AD mix AES monitoring output.
03	NEXT	none	Prompts the user to press the button marked NEXT for further menu options.

Menus 04-07, ident bar and audio alarm accept.

(Press NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
4	Ident Bar	Off,On Default is On	Pressing this will turn on or off the Ident Bar.
5	Ident Fader	0-100% Default is 100%	The fade level of the Ident bar overlaid on to the video image.
6	Not used		
7	Accept alarm	none	Pressing this accepts the current alarm.

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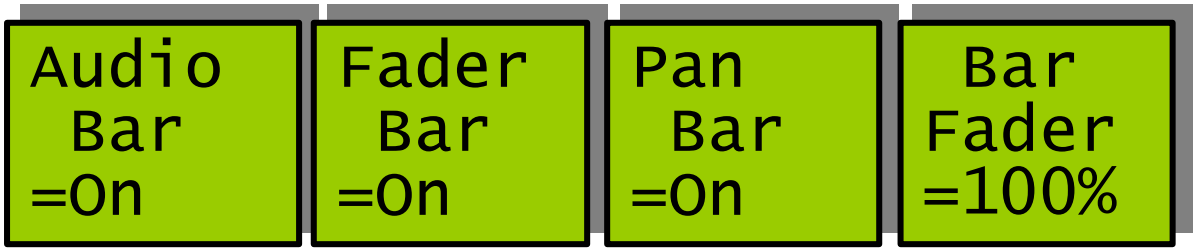
Menus 08-11 Screen display select.

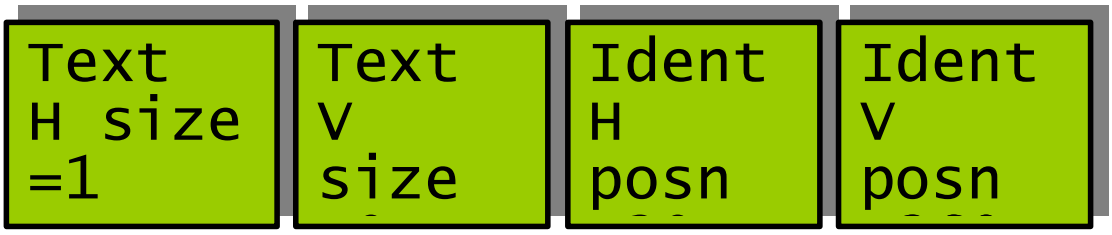
(Press NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
8	Audio Bar	0=Off 1=On Default is On	Pressing this will turn on or off the Audio Bar.
9	Fader Bar	0=Off 1=On Default is On	Pressing this will turn on or off the Fader Bar.
10	Pan Bar	0=Off 1=On Default is On	Pressing this will turn on or off the Pan Bar.
11	Bar Fader	0=0ff 296d=Full on	The fade level of the Audio, Fader and Pan bar overlaid on to the video image.

Menus 12-15 Ident bar size and position

(Press NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
12	Text H size	0-1, Default is 1	This sets the horizontal size of the text.
13	Text V size	0-1, Default is 0	This sets the vertical size of the text.
14	Ident H posn	0-999 Default is 20	This sets the horizontal position of the Ident bar on the video image.
15	Ident V posn	0-999 Default is 260	This sets the vertical position of the Ident bar on the video image.

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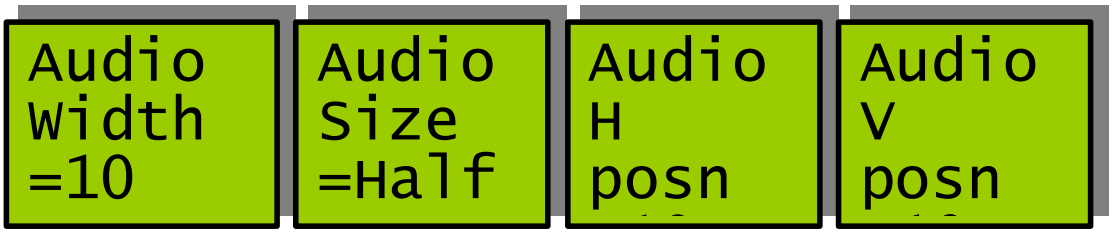
Menus 16-19 Audio bar graph size and position

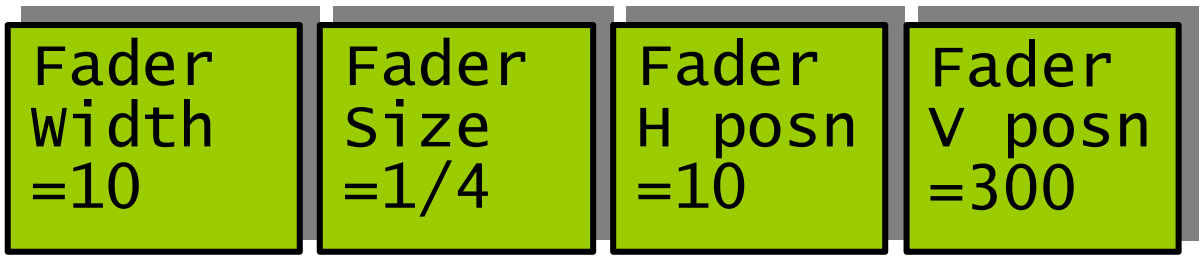
(Press NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
16	Audio Width	2-62 Default is 10	The width of the Audio bar.
17	Audio size	0=1/4 1=half 2=full Default is half	The length of the Audio bar. The following options are available ¼, ½ and Full.
18	Audio H posn	0-999 Default is 10	This sets the horizontal position of the Audio bar on the video image.
19	Audio V posn	0-999 Default is 10	This sets the vertical position of the Audio bar on the video image.

Menus 20-23 Fader bar graph size and position

(Press NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
20	Fader Width	2-62 Default is 10	The width of the Fader bar.
21	Fader size	0=1/4 1=half 2=full Default is 1/4	The length of the Fader bar. The following options are available ¼, ½ and Full.
22	Fader H posn	0-999 Default is 10	This sets the horizontal position of the Fader bar on the video image.
23	Fader V posn	0-999 Default is 300	This sets the vertical position of the Fader bar on the video image.

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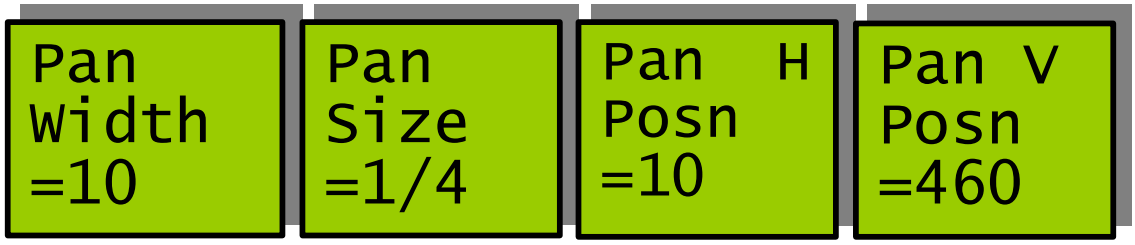
Menus 24-27 Pan bar graph size and position

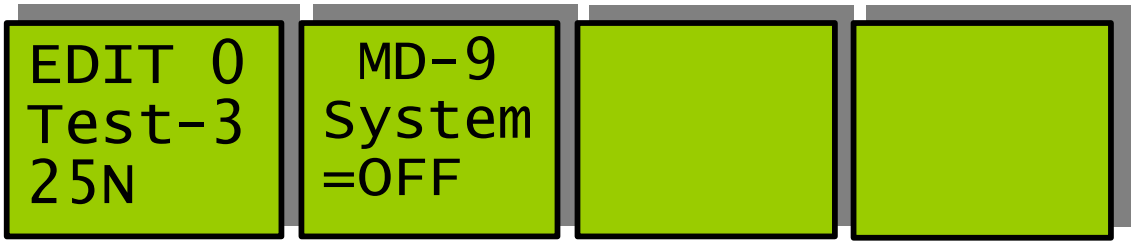
(Press NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
24	Pan Width	2-62 Default is 10	The width of the Pan bar.
25	Pan size	0=1/4 1=half 2=full Default is 1/4	The length of the Pan bar. The following options are available ¼, ½ and Full.
26	Pan H posn	0-999 Default is 10	This sets the horizontal position of the Fader bar on the video image.
27	Pan V posn	0-999 Default is 460	This sets the vertical position of the Fader bar on the video image.

Menus 28-31 Edit Ident bar information

(Press NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
28	EDIT	none	Pressing the return key switches the system into an editing mode. The memory to be edited is displayed on the top line this can be adjusted by pressing the display button or by turning the associated knob. The first 6 characters form the text of the message, the next two digits define the foreground and background colours. The last digit defines whether the text is flashing (F) or normal (N), the default is normal so the 'N' may be omitted. The colours are defined as : 0=white, 1=cyan, 2=yellow, 3=green,

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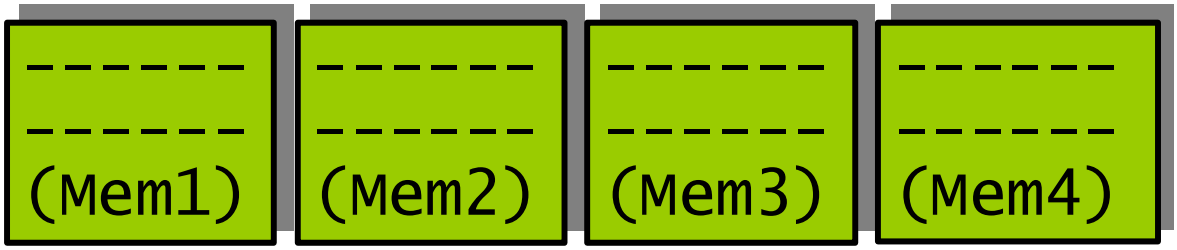
			4=magenta, 5=blue, 6=red and 7=black. Defining either colour to be red, 6, will cause an alarm to be generated when that A.F.D. message or error message occurs. This does not apply to the channel ID. The memory locations are defined as : 0=ID, 1=OK, 2=Absent, 3=Swapped, 4=Inverted, 5=Swapped and Inverted, 6=CRC error, 7=Swapped and CRC error, 8=Inverted and CRC errorand 9=Swapped, Inverted and CRC error. When editing of a message is complete pressing return will revert the system into normal mode.
29	Master Display System	1=ON 2=OFF	If this system has a remote master display system (Eyeheight product code MD-9) then this must be set to ON. Otherwise it must be OFF.
30			SPARE
31			SPARE

Menu 32-35: Memory Recall (Press NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
32	MEM1	1 recalls memory	Recalls configuration memory 1
33	MEM 2	1 recalls memory	Recalls configuration memory 2
34	MEM 3	1 recalls memory	Recalls configuration memory 3
35	MEM 4	1 recalls memory	Recalls configuration memory 3

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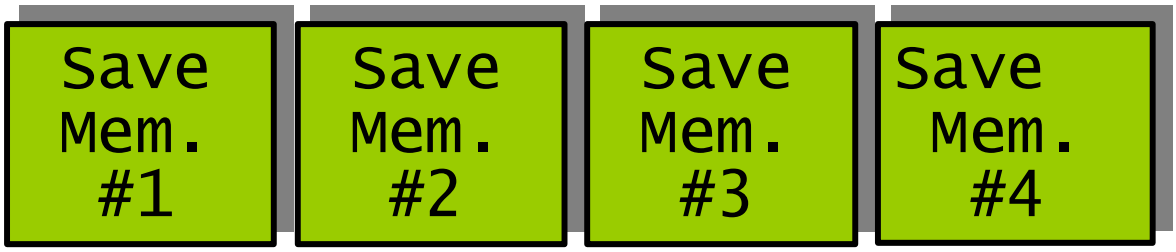
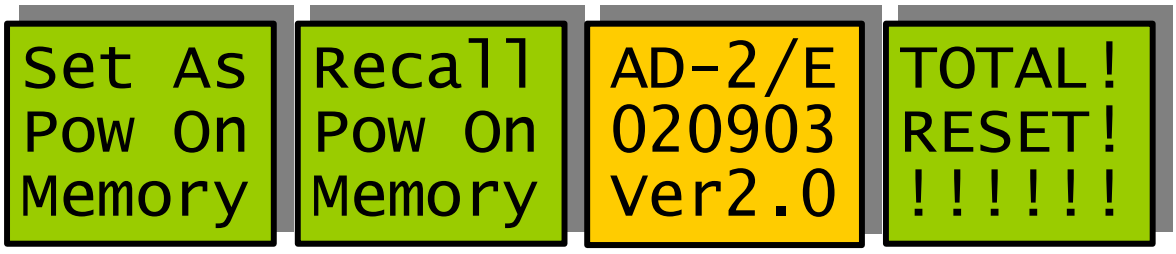
Menu 36-39: Memory Save (Press NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
36	SAVE MEM1	1 saves configuration	Saves current configuration as memory 1
37	SAVE MEM2	1 saves configuration	Saves current configuration as memory 2
38	SAVE MEM3	1 saves configuration	Saves current configuration as memory 3
39	SAVE MEM4	1 saves configuration	Saves current configuration as memory 4

Menu 40-43: Power On Memory (Press PREV to navigate)



Menu Num.	Heading	Automation	Function
40	Save Power On Memory	1 to save memory	Saves current configuration as Power On memory.
41	Recall Power On Memory	1 to recall memory	Recalls the Power On memory configuration.
42	"Total Reset ".	1 to cause Total Reset	This puts all current and power on default settings to the factory default
43	Software version		This displays the current software version.

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4 Technical Appendix

4.1 Technical Specification for the PM-2/2E

Number of Inputs	1
Type of Inputs	270Mbit Serial Digital Video Inputs 75 Ohm
Line Length	At least 200 Meters of PSF1/3 (Typically 275 Meters)
Number of Outputs	1 (PM-2), 3(PM-2E) Output BNC's per Card (Configurable).
Type Of Outputs	270Mbit Serial Digital Video Outputs, 75 Ohm, 800mV
Total Number Of BNC Connections	2, consisting of 1 Fixed Input and 1 Fixed Output (PM-2) 5, consisting of 1 Fixed Input and 3 Jumper Configurable outputs. (One BNC not used)(PM-2E)
SDI Output Jitter	The system will add less than 0.2UI to the input Jitter. (This is only guaranteed on issue 2 or later cards)
Current Consumption	<800mA at +5V
Size	215mm by 100mm

4.2 Jumpering the I-BUS (CAN-BUS) Termination

The I-BUS Network is the "control system" under which all Products and Panels are networked together. Under certain circumstances it is necessary to terminate the network. This can be done on a Panel or a "Product". To terminate this product, locate J6 on the PM-2/2E Processor Card supplied which is between U1 (The large square "chip") and the Edge connector. (This is on the half of the card labelled "CHP-100 Spartan2 Processor"). Jumper this with a 2mm link.

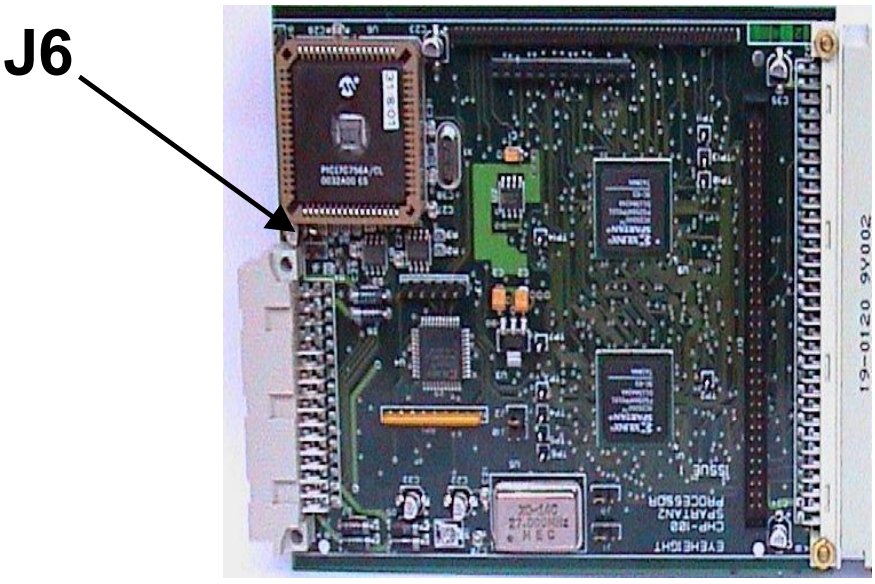

Figure 4-1 Location Of I-Bus Termination Link

eyeheightUnit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
Reg. No. 2855535 Telephone: +44 (0) 1923 256 000 Fax: +44 (0) 1923 256 100 email: eesales@eyeheight.com